



Two possible types of regions with different ground water distribution over the Gale crater along the MSL traverse according to DAN experiment onboard the Curiosity rover.

Alexander Kozyrev, Igor Mitrofanov, Denis Lisov, Maxim Litvak, Andrey Vostrukhin, Dmitry Golovin, Alexey Malakhov, Maxim Mokrousov, Sergey Nikiforov, and Anton Sanin
Space Research Institute, Russian Federation (kozyrev@iki.rssi.ru)

In the report will be presented the result of evaluations of water and chlorine contents at the Martian subsurface in the Gale crater. This result based on data of active neutron measurements by DAN experiment aboard NASA's Mars rover "Curiosity" in 412 sites along the 11 km of the rover traverse. In 78% of studied sites the distribution of water can be considered as homogeneous with average water content of $2.1 \pm 0.5\%$. In 22% of sites the data suggest the two-layer model of the water distribution in the soil. The average water content in the top layer is about 2-3%, which is close to the value for site with the homogeneous distribution of water. In the first type of sites with two-layer water distribution, which constitute 8% of the total number, the data suggest the mass fraction of water $5.6 \pm 2.7\%$ in the bottom layer below the depth of 27 ± 18 cm. In the second type of sites with two-layer water distribution, which constitute 14% of the total number, data request much smaller fraction of water $1.2 \pm 0.5\%$ in the bottom layer below the depth of 14 ± 7 cm. For interpretation of the observations, one may suggest that the two types of regions exist in the Gale crater with high and low water content, which corresponds to different horizons of sediments formed in water and atmospheric environments, respectively.